

nih record



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On Ebola's Front Lines

NIH'ers Among First Commissioned Corps Deployment To West Africa Outbreak

By Carla Garnett

Disaster struck more than 5,000 miles away. West Africa was in the midst of the worst Ebola virus outbreak in history. The deadly epidemic, begun in December 2013 in Guinea, spread quickly to neighboring Liberia and Sierra Leone by March 2014. Several factors complicated containment of the disease, including extreme poverty, political instability and a dysfunctional health care system. By last summer, the outbreak threatened several nations outside of Africa, becoming a global emergency health crisis.

Last October, the United States took an extraordinary step to address the crisis, beyond the already sizable response in U.S. resources—medical, scientific, logistical and financial. The U.S. Public Health Service assembled a team of 69 Commissioned Corps officers

SEE **EBOLA**, PAGE 6



In Liberia, Lcdr. Rafael Torres-Cruz of ORS was one of 7 NIH'ers deployed.



Kids of NIH staff and their friends do the downward-facing dog pose as they try out yoga together.

PHOTO: BRYAN EWSICHEK

Complementary Health

Survey Reveals New Trends in Use of Natural Products

By Dana Talesnik

Holding that lotus pose? Reaching for certain dietary supplements while pushing others to the back of the medicine cabinet? Then you're among the growing number of Americans using complementary health products and therapies—from mind and body practices such

SEE **NATURAL**, PAGE 4

Goal Exceeded, Again

CFC Finishes on a High Note

By Ellen O'Donnell

"Think for a moment what you have made possible," said Dr. Lawrence Tabak, NIH principal deputy director. "Health care, shelter and food for those who would otherwise go without; tutoring and job training that turn lives around; cleaner air and water; and adopted pets. Those are just a few examples. You have lifted spirits and you have given hope."

He was describing NIH's achievements in its 2014 Combined Federal Campaign, which closed at \$200,000 over goal at nearly \$2.4 million. It's become a proud tradition for NIH, consistently the highest donor to CFC within HHS and Montgomery County.

If you noticed that your work area and building became mysteriously inundated with cute puppies, kittens and toddlers last fall, be assured that it was part of a Grand Plan. NCCIH led this year's CFC at NIH and developed a unique approach for posters and banners. Said Dr. Josephine Briggs, NCCIH direc-

SEE **CFC**, PAGE 10



The NIH Record is recyclable as office white paper.



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NIH...Turning Discovery Into Health

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Professor and Author Beilock Gives DDM Talk

The Deputy Director for Management announces the second DDM seminar of the 2014-2015 series "Management and Science: Partnering for Excellence." The event on Thursday, Apr. 9 from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10, will feature Dr. Sian Beilock, who will discuss "How To Perform Your Best Under Stress." She will focus on strategies, tips and tools for performing at our peak.

Videocasting and sign language will be provided. Individuals who need reasonable accommodation to attend should contact the NIH Training Center at (301) 496-6211 or the Federal Relay Service at 1-800-877-8339.

For more information about the series, visit www.ddmseries.od.nih.gov or call (301) 496-3271.

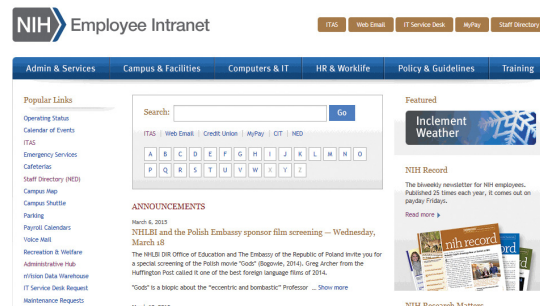
NCATS Seminar, Meetings on Pfizer Centers

NCATS will host a seminar on Monday, Apr. 13 from 2 to 5 p.m. at Lister Hill Auditorium, Bldg. 38A, as well as one-on-one meetings on Apr. 14 by appointment for NIH intramural researchers interested in Pfizer's Centers for Therapeutic Innovation (CTI) collaborative opportunities.

The CTI model is the first NIH-wide biologics initiative with a pharmaceutical partner that NCATS will coordinate on behalf of all NIH intramural researchers; NIH investigators will be paired with Pfizer resources to pursue scientific and medical advances through joint therapeutic development.

The goal of this new collaboration is to identify biologic compounds with activity in a pathway or target of interest to an NIH intramural researcher and to Pfizer. Together, the partners will work to move these compounds into the clinic to test them. The first Pfizer call for proposals from NIH intramural researchers is slated for spring 2015. Other partners in the CTI network include 25 academic institutions and 4 patient foundations.

For more information and to register for the April dates, contact Lili Portilla, NCATS director of strategic alliances, at NIH-PfizerCTI@mail.nih.gov. For more information about the Pfizer CTI for NIH researchers, visit www.ncats.nih.gov/cti.html.



NIH Employee Intranet Debuts

Is your list of Internet bookmarks as long as a, er, book? Here's something to put at the top of the list—the NIH Employee Intranet.

Need links to ITAS, web email, the IT Service Desk, MyPay and the NED staff directory? Need to know the OPM operating status? Want easy access to the campus map, shuttle schedule, payroll calendar or the *NIH Record*? With the NIH Employee Intranet, it's all here, plus a lot more.

Be sure to bookmark the NIH Employee Intranet at <http://employees.nih.gov> for frequently used links, announcements and resources that matter to you as an NIH employee. If it looks a little familiar, that's because we've transformed the former For Employees web page into the NIH Employee Intranet.

The NIH Employee Intranet is accessible only inside the NIH network, whether you're physically at an NIH facility or teleworking remotely with a VPN account. If you need frequently used links when you're not logged on, you may find this web page useful: www.nih.gov/employee/employeeresources.htm.

Study Seeks Healthy Older Adults

Healthy older adults ages 55-75 are invited to participate in an outpatient research study investigating the benefits of omega-3 oil and blackcurrant supplements on vascular health. The goal of the study is to determine whether the supplements improve blood flow and blood vessel function that can affect your heart. Eligible participants must be medication-free and in good general health. The study will be carried out in an outpatient clinic and includes 4 visits over 6 months. Compensation is provided. For more information, call 1-800-411-1222 (TTY 1-866-411-1010) and refer to study 14-NR-0034.

Study Needs People with Fibromyalgia

NCCIH seeks people with fibromyalgia to participate in an MRI study exploring how the brain responds to pain. Outpatient study visits are conducted at the Clinical Center. Compensation will be provided. Call (301) 594-5731 (TTY 1-866-411-1010) or visit www.clinicaltrials.gov. Refer to study 13-AT-0143.



NIDCD advisory council member Dr. David Myers stands next to the international symbol of access for hearing loss, which informs people that there are services available for the deaf or hearing impaired. The "T" signifies that a hearing loop is installed.

NIH Installs Hearing Loop Technology

By Phalla Keng

Even with a hearing aid, people with hearing loss can struggle to understand what others are saying at a distance or in the presence of background noise. Meetings and conferences can present particular challenges. To address these issues, NIH recently installed hearing loop technology in several conference rooms on the Bethesda campus. Hearing loops enhance accessibility for the deaf and hard-of-hearing community by transferring audio signals from microphones and TVs directly into hearing aids and cochlear implants, which can be customized and creates a much clearer sound.

Attendees of the National Deafness and Other Communication Disorders advisory council meeting in January were among the first to benefit from this technology. Council member Dr. David Myers used the technology during the meeting. "The new technology in the NIH conference room works absolutely perfectly," he said. "It takes the sound from the loudspeaker in the wall and puts it directly into my ear. I no longer needed a transcriber to assist me at the meeting." Myers also helped another council member use the hearing loop technology. Both men wear hearing aids.

NIDCD collaborated with the Office of Research Services to install the technology in the two main 6th floor conference rooms in the C wing of Bldg. 31 and in NIDCD's conference rooms in the building. The rooms are also equipped with headphone receivers for occupants who need hearing assistance but do not have a hearing aid or cochlear implant. David Rice, a management analyst at NIDCD and an advocate for people who are deaf or hard of hearing who uses this technology, said, "NIH has one of the largest deaf and hard-of-hear-



Hearing loop installation in Bldg. 31, 6th floor conference room

ing communities in the federal government. The loop provides us with another accessible tool to be successful at NIH."

Hearing loops use telecoil, or t-coil, technology, which was originally designed to make sounds clearer on the phone. T-coils are now used in a variety of assistive listening devices and found increasingly in places of worship, home TV rooms, theaters, courts, auditoriums, drive-thru windows, airports and train stations. The listener must wear a hearing aid or have a cochlear implant that has a t-coil, which acts as a mini-wireless receiver. After being turned on by the user, the t-coil picks up the magnetic signal from the hearing loop and then turns that signal back into sound within the hearing aid or cochlear implant.

According to Ken Ryland, chief of the NIH Events Management Branch, hearing loops are expected to be installed in several other meeting and conference rooms around campus in the coming year in conjunction with other planned renovations. More information about assistive devices for people with hearing, voice, speech or language disorders can be found on NIDCD's web site.

NIAMS, NIAID and FNIH Host AMP Investigators

NIAMS, NIAID and the Foundation for the National Institutes of Health recently held a 2-day meeting to bring together, for the first time, investigators participating in the Accelerating Medicines Partnership (AMP) Rheumatoid Arthritis (RA) and Lupus Network. The network, which was funded last fall, is part of a larger public-private partnership between NIH, industry and health advocacy organizations to speed the development of new therapies for patients with lupus and RA. The researchers discussed the unique capabilities and research interests of each network site. With that background, they developed a 5-year vision for the network and set out immediate near-term goals. Network investigators presented their goals and plans to members of the network steering committee. The meeting helped researchers harmonize their individual efforts into a collaborative framework and generated excitement about the potential of this effort to transform rheumatic disease research.



as yoga to taking natural products such as fish oil pills—in addition to conventional care. And, you're likely paying attention to the research on what products may or may not be effective. Results from a recent national survey show certain supplements and therapies are becoming more popular than others, trends that seem to correspond with the latest research results.

The National Center for Complementary and Integrative Health recently released findings from a 2012 complementary health questionnaire, developed in conjunction with the Centers for Disease Control and Prevention's National Center for Health Statistics. This nationally representative survey, conducted in 5-year intervals, is the third among adults and the second to study complementary health among children. Nearly 90,000 adults were surveyed in 2002, 2007 and 2012 cumulatively, and another 17,000 adults knowledgeable about children ages 4-17 were interviewed in 2007 and 2012.

"In terms of natural products, what's interesting to us is that the changes over time in children and adults, from 2007 to 2012, seem to mirror research findings," said Dr. Richard Nahin, NCCIH senior advisor for scientific coordination and outreach and a co-author of the surveys' reports. "Since the data coincides with changes in use, we're thinking perhaps the public is paying attention to research findings."

Data from the 2012 survey showed fish oil and melatonin topped the list of natural products used among adults and children, while the use of echinacea declined dramatically since 2007. Among adults, the use of probiotics increased while glucosamine/chondroitin became less popular.

These findings are in line with recent research about dietary supplements, some of which shows negative or inconclusive evidence on health benefits. For example, the decrease in echinacea use coincided with research trials that could not prove the supplement boosts the immune system or helps prevent colds. In fact, several NCCIH-funded studies on echinacea found no health benefit at all, said Nahin. Other formerly popular supplements had a similar fate in research studies. Recent large NIH trials found glucosamine/chondroitin ineffective at relieving arthritis pain.

Such survey results help inform NIH research. "The major impetus in doing these surveys, going back to our first one in 2002, was really to guide the NIH research agenda so that NCCIH and the other institutes interested in these interventions will know what the public is using and help guide whether we should be putting dollars into trials of glucosamine or trials of acupuncture or trials of echinacea," said Nahin. "If there's very little use of these products by the U.S. population, it doesn't make sense for the NIH to be putting a lot of money into studying them."

The survey revealed a growing trend among adults toward yoga, tai chi, deep-breathing exercises, meditation, chiropractic care, acupuncture and massage. Results from the children's survey showed that such complementary therapies—particularly chiropractic care and yoga, tai chi or qi gong—were often used to manage head or chest colds, anxiety, back or neck pain and other musculoskeletal conditions.

Most people turn to complementary health approaches to improve their health and well-being, alleviate stress and to help manage pain and other symptoms associated with chronic conditions or the side effects of prescribed medicines. Whatever complementary medicine you use or consider using, it's important to discuss it with your doctor.



"In terms of natural products, what's interesting to us is that the changes over time in children and adults, from 2007 to 2012, seem to mirror research findings," said Dr. Richard Nahin, NCCIH senior advisor.

"If you're going to use supplements or if you're going to see an acupuncturist or use massage, you should always let your conventional care provider know," said Nahin. "There's always the potential for some interactions with your conventional therapy."

If you're taking warfarin, for example, also taking ginkgo could affect the blood thinner's ability to work and may even harm you. That's why it's important for patients and their health practitioners to communicate. That's integrative health. "With any complementary practices, your health plan should incorporate all of these factors in a systematic way with the full knowledge of all participants," said Nahin.

More scientific research is needed on popular products and therapies, from dietary supplements to acupuncture, yoga and massage. It's an ongoing cycle. Product-use trends inform NIH research and investment into safety and efficacy studies. And the resulting research informs the public on what supplements and therapies may or may not work best for most people.

NCCIH continues to work collaboratively on this research with other institutes, including NCI, NHLBI and NIAMS. Said Nahin, "By working together both financially and intellectually, we can produce the best available evidence for the public and the clinicians." 🗎



Marie Claire Tchecola, an Ebola survivor, meets with NIAID director Dr. Anthony Fauci in his office.

'Woman of Courage' Visits NIH

Marie Claire Tchecola, an Ebola survivor and recipient of a 2015 International Women of Courage Award, visited NIH on Mar. 9, meeting with NIAID director Dr. Anthony Fauci and getting a tour of the Clinical Research Center from its director, Dr. John Gallin.

The International Women of Courage Award, presented by the U.S. Secretary of State, annually recognizes women around the globe who have shown exceptional courage and leadership in advocating for women's rights and empowerment, often at great personal risk.

Tchecola, a French speaker, is an emergency room nurse at Donka Hospital in Conakry, Guinea. The first woman to be educated in her family, she grew up in a small Guinean village near the border with Senegal. She could have been a doctor but chose nursing "because you can touch more people."

Only doctors at Guinea's largest hospital were given gloves, so it was Tchecola's passion for touching, nurturing and caring that exposed her to the Ebola virus while treating a patient in July 2014.

At the time, transmission was not widespread in the capital. One of the insidious traits of Ebola is that its early symptoms mimic those of other diseases common in Guinea. Once Tchecola identified her own symptoms, however, she checked herself into a treatment center, stopping the chain of transmission and sparing coworkers, friends and family from infection.

Battling fear and stigma over Ebola, including being forced by her landlord to leave her own



Tchecola gets a tour of the Clinical Research Center from its director, Dr. John Gallin (c). She's accompanied by her interpreter, Martin Gilbert (r).

PHOTOS: BILL BRANSON

home, Tchecola returned to her job caring for the sick at Donka Hospital. She is an active member of the Ebola Survivors Association of Guinea, committed to speaking out publicly about Ebola, spreading awareness about the disease and fighting stigmatization against survivors.

Tchecola's visit to Washington, D.C., was hosted by Meridian International Center, a nonpartisan public diplomacy organization. She received her award from Secretary of State John Kerry and First Lady Michelle Obama on Mar. 5 at the State Department. ①

NIAMS Discusses 3-D Human Tissue Models

As part of the NIAMS scientific planning process, NIH-funded investigators recently met with institute leadership and staff for a day-long discussion of Opportunities and Challenges in Developing 3-Dimensional Human Tissue Models to Study Musculoskeletal and Skin



Physiology and Pathophysiology. NIAMS director Dr. Stephen Katz, deputy director Dr. Robert Carter, program directors Drs. Carl Baker and Fei Wang and Duke University professor Dr. Farshid Guilak led the forum. Program staff from four other ICs [Drs. Denis Buxton (NHLBI), Rosemarie Hunziker (NIBIB), Nadya Lumelsky (NIDCR) and Dan Tagle (NCATS)] also contributed to the discussion, which focused on existing models and ongoing efforts that could facilitate an understanding of disease pathogenesis, functional studies of gene variants, high-throughput drug screening, drug toxicity studies or testing of potential therapies. Researchers also described impediments to model development and proposed approaches to overcome these hurdles.



EBOLA

CONTINUED FROM PAGE 1

Above, from 1:

NIH'ers deployed with Team 1 to the Ebola crisis in Liberia are (from l) Torres-Cruz, Cdr. Robert Horsch of ORS, Lt. Michelle Holshue of the Clinical Center, Lt. Shane Deckert of ORF, Cmdr. Michelle Braun of NIDDK, Cmdr. Gregg Gnipp of ORF and Lt. John Pesce of NIAID.

The survivor wall

Below:

Horsch gets ready to be fit tested for a respirator.



to deploy to the Monrovia medical unit (MMU), just outside of Liberia's capital city. Seven NIH'ers were among those selected for the team. Back at home now, a few of them shared details from the experience.

Different Kind of Deployment

Several factors made this deployment unique, according to NIAID's Dr. John Pesce, a lieutenant in the corps.

"First, the length of the deployment was beyond the normal 2 weeks," he said. "Second, this team was handpicked from the best of the best of the current officers. Third, this is the first time the [corps] has ever deployed to respond specifically to a disease outbreak. We have responded internationally in the past—Haiti earthquake, Indonesian tsunami, Japan earthquake—but never in our history have we been recognized as being the specialized medical team that can focus on the treatment of a specific disease." The Commissioned Corps is the only one of the 7 uniformed services (Army, Navy, Air Force, Marines, Coast Guard and National Oceanic and Atmospheric Administration) with a mission that specifically addresses public health, Pesce pointed out.

This first group, "Team 1," was assigned to serve from Oct. 19 to Dec. 21—61 days—more than 4 times the usual deployment period.

In addition, noted Lt. Cmdr. Rafael Torres-Cruz of the Office of Research Services, it was the first time the corps "had the lead role and main responsibility for the success of a mission during an international crisis in response to a United Nations' request to support the Liberian government and, more specifically, the Liberian health ministry."

Learning of the upcoming assignment, many NIH'ers volunteered.

"I have participated in a few deployments in the past—Hurricane Sandy 2012 and Unaccompanied Minors 2014—and there was no way I was going to be left out of this one," Pesce said. "As soon as I found out they were assembling rosters, I contacted the officers in charge and requested to be on the first team."

Lt. Michelle Holshue of the Clinical Center was also eager to go. "As an infectious disease nurse, the opportunity was a dream come true," she said.

"This is what we do," said Cmdr. Michelle Braun of NIDDK. "The [corps] responds to public health needs both at home and abroad. NIH officers are fortunate that our agency leadership and colleagues support us by taking care of our NIH responsibilities while we are deployed."

Preparing to Go

Before traveling to Liberia, the team was sent on a week-long intensive training and orientation session at the Center for Domestic Preparedness in Anniston, Ala., where they were lectured on safety, infection control and other topics relevant to working in an Ebola treatment unit. They participated in hands-on drills for dressing/undressing in protective gear, received a number of extra vaccinations and underwent multiple health screenings as part of their State Department physicals. Team members were also briefed on stress management, terrorism, life in Liberia and were advised about putting their home and family affairs (will, power of attorney) in order.

"Training prior to leaving for Anniston included clinical information about the Ebola virus, the current outbreak and the response at that point in time," said Braun, who has been on more than 10 deployments, national and international. "Survival, evasion, resistance and escape—'SERE'—a Department of Defense training

component, was also required. The training for this deployment far exceeded any previous pre-deployment training required.”

‘Hooch’ Life

Lt. Shane Deckert of the Office of Research Facilities described the scene they found in Liberia.

“We arrived at the end of ‘wet season,’ which was basically monsoon season, then transitioned into the ‘dry season,’” he explained. “Every day was very hot and humid and my job revolved around me being outside...designing and building items for the hospital as the lead engineer. We ate meals ready to eat—MREs—for 35 days straight...We slept 11 to a 2-bedroom ‘hooch,’ a tiny concrete house.”

Pesce had expected certain rustic conditions. “I knew we were going to a developing country that was recovering from internal conflict,” he said, “but I don’t think I was really prepared to see such abject poverty. I had never been to Africa or a developing country so I was certainly taken aback at how poor some people in this world really are. There is little electricity and even less sewage removal. You cannot drink the water because it is likely to make you sick, so you always drink bottled water and even use it to brush your teeth. It really made me appreciate the basic things that we have here in the U.S. that all of us take for granted.”

“We worked 12-14 hour shifts,” he continued. “Typically, I would get back to my hooch at the end of the day, take a shower and shave and then crash in my cot for 5-6 hours before the day started over. This was pretty much every day for the first 50 days of the deployment.”

Thanksgiving, for Real

“Borrowing from a Liberian colloquialism,” Braun said, “It’s not easy. Once you adjust to the surroundings, you appreciate what you have and adapt.’ Team members take care of each other by sharing—food, possessions and things learned on prior deployments—to make things more comfortable.”

Holshue agreed, “Our living and working conditions were certainly austere. We slept in communal housing on military cots at first, and then eventually moved into large, 20-person tents when our camp was constructed next to Roberts International Airport. Our hospital facility was also a series of large tents with plywood floors—very sparse. We didn’t have access to hot meals for more than a month...One of our first hot meals was for Thanksgiving dinner, and we ate on these huge tables made out of plywood. It was challenging, but looking around



At left, Horsch and Pesce build tables. At right, Braun helps an officer get dressed for duty.

the table at our MMU family as we sat down to dinner that night, I realized we had so much to be grateful for.”

In the Trenches

Holshue said on a typical day, team members “would complete our work in shifts—nurses would always go into the high-risk area in pairs. It took about 30 minutes to get the personal protective equipment (PPE) on and prepare for our patient care. And there is a time limit to how long we could physically endure wearing the PPE—generally we’d have about 1½-2 hours to get all of our work done. After we finished with patient care or exceeded our time limit, the doffing—undressing—process took another 15-30 minutes. A safety officer would walk us through the process, step-by-step, spraying us down with chlorine as we took off each layer of protective gear...After our rotation, there were always things to do—preparing for a patient discharge or admission, restocking supplies, checking inventory levels, cleaning our workspaces. The days went by quickly. At our busiest, we worked 6-7 days a week.”

Noted Braun, “The level of attention required to safely enter, work and exit the Hot Zone is unlike anything we had ever done in our nursing careers. Everyone has to remain focused at all times to protect the team from exposure and provide care to our patients.”

For his part, engineer Deckert said he spent a lot of time on do-it-yourself home improvement projects.

“My typical day consisted of reflecting on the status of our Monrovia medical unit and designing ways to better our hospital and our unit morale while on the [hour-long] bus ride to work,” he said. “Once I got to work, I got right to work building those items. Just about every day of the 2-month deployment, I was outside figuring out solutions to our engineering problems and working with [Pesce] to fix them. Lt. Pesce was my ‘honorary engineer’ and helped me design and construct things and also taught me a ton about woodworking.”

Items they built from scratch included a rack for their muck boots to dry on, covers to protect their water supply, benches to use when changing from uniforms into scrubs, bedside tables for patients (designed by Pesce), a field shower made with catheter bags and a spray pump, a drainage ditch to catch the contaminated water runoff from the hospital, stairs to allow better access to chlorinate the water tanks, a pull-up and dip bar to allow workouts and tables to hold mission-essential hand-washing stations.

After 6 weeks, Pesce was transferred to the safety/preventive medicine unit due to staff shortages there. He worked the same hours but his responsibilities changed. His new role? Safety person for the doctors and nurses treating the patients.

“I would ensure they had a safe environment to work in—cleaning toilets and



Above, from l:

At the survivor wall is co-creator Holshue, a CC infectious disease nurse who returned to Liberia Mar. 2. Via email she says, "I'm here to work on the clinical trials that NIH/NIAID are running! I'm so happy to be back!"

Deckert (r) gives a fellow officer a briefing on construction at the Monrovia medical unit.

Below:

The muck boot rack fashioned of necessity



CONTINUED FROM PAGE 7

cleaning vomit up off the floor—and ensure that when they performed any procedures that they were doing them safely and that there were no accidental exposures," he said.

"[The team was] extremely well trained and more than up to the task at hand, so fortunately my job was just to be an observer most of the time," he continued. "I would suit up once or twice a day for about 2-hour shifts. This may not sound like a lot, but it is absolutely exhausting. The temperatures are brutal and you cannot stop sweating. It was typical for me to lose several pounds in a 2-hour shift just from sweating. This means you need to have recovery and rehydration time before your next shift. And on top of all this you have to remember that the very room you are in and the patients you are treating are contaminated with Ebola, so not only is it physically draining it is also mentally draining because a mental mistake can be lethal."

Impact, Professional and Personal

The mental and emotional tolls were perhaps the steepest hurdles for team members. "The most difficult part of the experience was losing a patient," Holshue noted. "We were caring for health care workers who got infected with Ebola because they were on the front lines of this epidemic. These were the true heroes of this massive worldwide effort. So when a patient succumbed to Ebola, it wasn't just losing a patient—they were our colleagues, our heroes."

Cmdr. Robert Horsch, an ORS industrial hygienist, agreed. "Watching the fear of patients entering the MMU as if assigned a death sentence...Death of patients was very difficult to experience. However, watching patients survive extreme disease was overwhelming."

"Never have I known someone for such a short period of time, yet instantly know they will be with you forever," added Braun. "As devastating as the negative outcomes were, seeing survivors reunite with family was an amazing experience."

To mark the good times, Deckert, Holshue and Pesce fashioned a survivor board. "The best thing was when our patients survived and we were able to discharge them from the MMU," noted Holshue. "All of our staff would gather outside and we'd have a big celebration when the patient would emerge from the exit. We had a ceremony with a wall where survivors would place their handprints in bright yellow paint. It said, 'Today I Am Healed—Tomorrow I Return to Heal Another.'"

The current outbreak seems to be slowing, although the total lives lost in one nation alone is still enormous. As of Mar. 4, according to the Centers for Disease Control and Prevention, Liberia has experienced an estimated 9,249 Ebola cases; 4,117 deaths in the country have been reported from the deadly virus.

Torres-Cruz, who as night-shift chief of safety fulfilled the role of gatekeeper of the Hot Zone, recalled, "Many great things happened during the mission, probably the first one was a night when I was inside the MMU and saw two of our confirmed patients out of bed walking around and smiling. Immediately I knew that they were getting better. At that time I realized that all this effort was not in vain. They eventually were the first two survivors that left the MMU. Also, we got a call from President Obama and a visit from the Liberian president. The worst was probably when we first lost a patient due to Ebola. At that moment reality hit us in our face and we realized how destructive this virus is."

Describing the personal as well as professional impact, Pesce concluded, "As a scientist, we often don't get to see the tangible fruits of our efforts. By participating in this deployment I got the chance to see that what I did made a difference and improved the lives of others. Additionally, I made 68 new friends who have truly become family to me. Despite the hardship and sadness this was one of the best experiences of my life." 📌

digest

Study Reveals How Genetic Changes Lead to Familial Alzheimer's

Mutations in the presenilin-1 gene are the most common cause of inherited, early onset forms of Alzheimer's disease. In a new study, published in *Neuron*, scientists replaced the normal mouse presenilin-1 gene with Alzheimer's-causing forms of the human gene to discover how these genetic changes may lead to the disorder. Their surprising results may transform the way scientists design drugs that target these mutations to treat inherited or familial Alzheimer's, a rare form of the disease that affects approximately 1 percent of people with the disorder. The study was partially funded by the National Institute of Neurological Disorders and Stroke.

For decades, it has been unclear exactly how the presenilin mutations cause Alzheimer's disease. Presenilin is a component of an important enzyme, gamma secretase, which cuts up amyloid precursor protein into two protein fragments, Abeta40 and Abeta42. Abeta42 is found in plaques, the abnormal accumulations of protein in the brain that are a hallmark of Alzheimer's. Numerous studies suggested that presenilin-1 mutations increased activity of gamma-secretase. Investigators have developed drugs that block gamma-secretase, but they have so far failed in clinical trials to halt the disease.

"The findings are a significant departure from conventional thinking that should open up exciting and creative new possibilities at all levels of research, from basic molecular mechanisms all the way to clinical intervention," said Dr. Roderick Corriveau, program director at NINDS.

Eylea Outperforms Other Drugs for Diabetic Macular Edema

In an NIH-supported clinical trial comparing three drugs for diabetic macular edema (DME), Eylea (afibercept) provided greater visual improvement, on average, than did Avastin (bevacizumab) or Lucentis (ranibizumab) when vision was 20/50 or worse at the start of the trial. However, the three drugs resulted in similar average improvement when starting vision was 20/40 to 20/32. Investigators found no major differences in the safety of the three drugs. The trial was funded by the National Eye Institute.

Additional funding was provided by NIDDK.

"This comparative effectiveness study will help doctors and patients make informed decisions when choosing treatments for diabetic macular edema," said NEI director Dr. Paul Sieving. The results were published in the *New England Journal of Medicine*.

DME can occur in people with diabetic retinopathy, a type of diabetic eye disease that can cause the growth of abnormal blood vessels in the retina. The macula is the area of the retina used when looking straight ahead, for tasks such as reading, driving and watching television. Macular edema, or swelling, occurs when fluid leaks from retinal blood vessels and accumulates in the macula, distorting vision. Macular edema can arise during any stage of diabetic retinopathy and is the most common cause of diabetes-related vision loss. About 7.7 million Americans have diabetic retinopathy. Of these, about 750,000 have DME.

"Eylea, Avastin and Lucentis yield substantial gains in visual acuity for most people with diabetic macular edema; however, on average, Eylea appears to provide additional benefit for patients who start treatment with moderate or worse vision loss," said Dr. John A. Wells, lead author of the study and a retinal specialist at Palmetto Retina Center, Columbia, S.C.

Physical Labor, Hypertension and Multiple Meds May Reduce Male Fertility

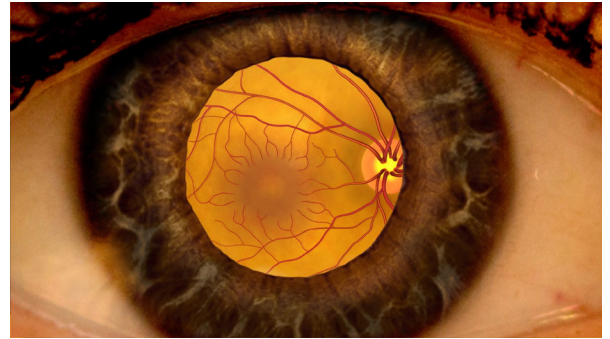
Working in a physically demanding job, having high blood pressure and taking multiple medications are among health risks that may undermine a man's fertility, according to a study by researchers at NIH and Stanford University. The study is the first to examine the relationships between workplace exertion, health and semen quality as men are trying to conceive. The results were published online in *Fertility and Sterility*.

"Nearly 15 percent of U.S. couples do not become pregnant in their first year of trying," said Dr. Germaine Buck Louis, the study's senior author and director of the Division of Intramural Population Health Research at NICHD. "Male infertility plays a significant role and our aim is to explore the influence of environmental factors and health status on semen quality."

Semen quality is a measure of a man's ability to achieve fertilization and is based on the number, shape and movement ability of sperm, as well as other factors.

The investigators followed more than 500 couples in Texas and Michigan over a year-long period. The couples were in committed relationships and stopped using contraception. All male participants completed preliminary interviews in which they were asked about their reproductive history, health, lifestyle and occupational activity. Most of the men provided a semen sample for analysis.

"As men are having children later in life, the importance of diseases we once thought as separate from fertility must be re-explored," said Dr. Michael L. Eisenberg, the study's principal investigator and director of male reproductive medicine and surgery at Stanford. "Future investigations need to examine whether it's the high blood pressure itself or the treatment that is driving these trends."



"Eylea, Avastin and Lucentis yield substantial gains in visual acuity for most people with diabetic macular edema; however, on average, Eylea appears to provide additional benefit for patients who start treatment with moderate or worse vision loss," said study lead author Dr. John A. Wells.



CFC

CONTINUED FROM PAGE 1

Above, from 1:

CFCNCA director Lou Nistler (l) presents the Million Dollar Circle Award to NIH, accepted by (from l) Dr. Josephine Briggs and Wendy Liffers, NCCIH, and (far r) Dr. Lawrence Tabak, NIH. Also pictured: Joel Sackett, 2014 HHS campaign manager.

Liffers hands off the CFC banner to Tim Wheelles, NIDCD executive officer and 2015 campaign chairman.

TOP PHOTOS: BILL BRANSON

Below:

Dr. Christopher Austin, director of NCATS and a trained opera singer, starred in the NCATS Directors Challenge video.



tor and 2014 campaign co-chair, “We asked, what does everyone love on the Internet—which videos go viral right away? Cute animals and babies. Our tagline was ‘Now that we have your attention, please give to CFC, whose charities include those helping kittens, puppies and kids in need.’”

It was also a theme in this year’s NIH Director’s Challenge. “We invited each IC to make a short, simple video, link to it in their CFC communications and upload it to the new NIH CFC YouTube channel,” said Briggs. For NCCIH’s sample video, one staffer shot it on his iPhone and another furnished Delta, a cat who cavorted with a laser pointer while Briggs delivered her CFC message. Sixteen more ICs made videos, which Briggs called “creative and impassioned” (see www.youtube.com/user/cfcnih).

Another theme was dedication, from the wide array of IC CFC events such as “Baking It Possible” (the Clinical Center), “A Taste of NIMH” and “Jail or Bail” (ORS/ORF) to the more than 800 key-workers who toiled throughout NIH this year.

The results? Very impressive, said Wendy Liffers, campaign manager and NCCIH executive officer. “Every staff member at NIH who gave, and each dollar that he or she gave, grew the whole to ‘Make It Possible’ for those in need,” she said.

A closing ceremony for the 2014 campaign on Mar. 4 recognized special achievements. The National Capital Area office of CFC awarded the Million Dollar Circle Award to NIH and 5 categories of awards to 35 ICs or IC units for high participation rates and/or per-capita donations. Tabak delivered remarks on behalf of co-chair NIH director Dr. Francis Collins, who, although not able to attend, sent his heartfelt thanks; once again, “our community rose to the challenge and made a difference in the lives of so many,” Collins wrote in an email.

“Who made it possible?” said Briggs, closing the ceremony. “All of you. Once again, NIH responded, demonstrating its famous generosity of spirit. I’m so proud of our caring community.”

Two Elected to American Academy of Microbiology

Two NIH scientists are among the 79 new fellows recently elected to the American Academy of Microbiology. Fellows are elected annually through a highly selective, peer-review process, based on their records of scientific achievement and original contributions that have advanced microbiology.

Dr. John Mascola is director, Vaccine Research Center, NIAID. Dr. Julie Segre is senior investigator, microbial genetics section, NHGRI.

There are over 2,400 AAM fellows. They represent all subspecialties of microbiology, including basic and applied research, teaching, public health, industry and government service. In addition, fellows hail from around the globe. The class of 2015 includes fellows from the U.S., Canada, Germany, Sweden, Australia, China, Japan, Chile, Ireland, France, the U.K., Italy and South Africa.



Above, Dr. John Mascola
Below, Dr. Julie Segre

PHOTO: MAGGIE BARTLETT



Next Protocol Navigation Lecture, Apr. 6

The IRP Protocol Navigation Training Program Seminar Series continues with a lecture to be held Monday, Apr. 6 from 2 to 3 p.m. in Bldg. 50, Conf. Rm. 1227/1328. Dr. Jonathan M. Gitlin of NHGRI’s Division of Policy, Communications and Education will present “FDA and the Regulation of Genomic Diagnostics in Research and Medicine.” For more information, contact Marcia Vital, (301) 451-9437, vitalm@mail.nih.gov.

Healthy Males Needed for Study

NIDDK seeks healthy males, 18-45, without diabetes to participate in a research study. Doctors want to learn how a new FDA-approved diabetes medication affects bone health in healthy men. Meals are provided and you will have outpatient visits and inpatient stays. Compensation is provided. For more information, call 1-866-444-2214 (TTY 1-866-411-1010). Read about the study at clinicaltrials.gov, study 14-DK-0195.



At left, Dr. David Miller spoke about pharmacology using effective metaphors, comparing his research to the movie *The Good, the Bad, and the Ugly*. At right, Dr. Abbe Boyles hopes the new series will meet a need common to biomedical research organizations—the need to better communicate science.

PHOTOS: STEVE MCCAWE

'Big Picture, Small Talk' Helps NIEHS Scientists Communicate

The Big Picture, Small Talk series is fostering connections among staff while it challenges NIEHS scientists to use plainer language to communicate their research. The talks, which debuted last fall, have tackled topics across the spectrum of NIEHS research, from epidemiology to toxicology and structural biology.

Dr. Abbe Boyles, organizer of the ongoing series, believes this grassroots initiative may be the only one at NIH to target people in the nonscientific workforce who want to learn more about the work they support.

"One of the inspirations for this series was Laura McGrew, a contracting officer in the NIEHS Office of Acquisitions," said Boyles. "She wanted to understand more about the science behind the things she was being asked to buy, both for her own knowledge and to be able to speak more intelligently with her customers." The series is proving to be a community builder for NIEHS as it fosters networking among scientific and nonscientific staff and across research divisions.

In addition, scientists are increasingly aware of the importance of building support for biomedical research; clear communication is crucial to the task. The series gives researchers experience talking to audiences outside their own areas of specialization.

So far, topics have included two high-profile public health studies, which Dr. Scott Auerbach, a molecular toxicologist, called everyone projects—large-scale efforts that include scientists and support staff from several NIEHS branches and offices.

Recently, epidemiologist Dr. Richard Kwok described the cross-divisional GuLF STUDY (Gulf Long-Term Follow-Up Study), which monitors potential health effects of the 2010 BP oil spill. In January, Auerbach discussed the efforts of some 11 groups in the National Toxicology Program, which is headquartered at NIEHS, to characterize the toxicity of mystery compounds involved in the 2014 Elk River, W.Va., chemical spill.

The inaugural talk featured an overview of NIEHS history and research. Other speakers combined plain language and humor to discuss research that could sound unintelligible to outsiders eavesdropping on highly specialized scientists. Pharmacologist Dr. David Miller presented the biology of the blood-brain barrier, "How Therapeutic Drugs and Nasty Chemicals Move Around Your Body."

Dr. Geoff Mueller, a structural biologist, helped NIEHS employees appreciate how nuclear magnetic resonance imaging helps in the study of environmental exposures that trigger allergic reactions and the search for better treatments. His talk included a visit to the NMR lab, where visitors saw firsthand the challenges of working with sensitive equipment.

Boyles says the series will continue as long as scientists are signing up to present and folks are showing up to learn.—Eddy Ball

milestones



Littleton Kearney To Direct Extramural NINR

Dr. Marguerite Littleton Kearney is the new director of the NINR Division of Extramural Science Programs, where she leads, manages and coordinates extramural scientific programs, grants management, scientific

merit review and advisory council operations.

Before joining NINR, she was a tenured professor, associate dean for research and director of the Faye G. Abdellah Center for Military and Federal Health Care Research at the Daniel K. Inouye Graduate School of Nursing at the Uniformed Services University of the Health Sciences.

Littleton Kearney's interdisciplinary research, funded by NINR since 1996, focused on the effects of sex hormones on cerebral vessel recovery after ischemic cerebral injury. In addition to her NINR-funded studies, her scientific interests include traumatic injuries and disaster management. She has served on NIH study sections in support of the scientific peer review process. In 2001, she became a fellow of the American Academy of Nursing.

Littleton Kearney earned a Ph.D. from Rush University, where she also completed a postdoctoral fellowship in nursing and pharmacology.



NIDCD Welcomes New Research Training Officer

Dr. Alberto Rivera-Rentas recently joined the National Institute on Deafness and Other Communication Disorders as research training officer. He brings a wealth of expertise in managing research training programs and an exemplary record of trans-NIH

collaboration experience. Rivera-Rentas most recently served as a program officer at NCCAM, now the National Center for Complementary and Integrative Health, where he oversaw the HIV/AIDS and special populations portfolio and served as research training officer. Prior to NCCIH, he managed several researcher-development and research-training programs for NIGMS. He also represented NIGMS on the NIH Blueprint for Neuroscience Research ENDURE program and worked on the NIH Director's New Innovator Award.



Claudia and her two grandchildren, River (l) and Quinn

PHOTO: KELLEY SOLOMON

Cancer Survivor Sees Hope in Clinical Trials

By Alison Davis

It started with mild indigestion and some sharp stomach pain, but the heartburn got worse over the course of a few months. Over-the-counter meds didn't seem to help much.

"I'll get this checked out after I get back from my summer vacation," said Claudia M., but the first appointment she could get was in early October. That was 2013 and she was 63. By fall, she had developed back pain, regurgitation and trouble swallowing.

It wasn't acid reflux, Claudia learned from her doctor, but something much worse.

"I'm almost 100 percent sure it's esophageal cancer," Claudia's doctor informed her, which began a journey of appointments and tests that confirmed the diagnosis.

It was metastatic stage IV esophageal cancer, to be specific, and the prognosis was not good.

"I told my family, 'Don't go online and search on survival,'" Claudia remembers. She began chemotherapy right away but was advised to forego surgery since the tumor had already spread beyond her esophagus.

In between chemotherapy sessions, Claudia started reading about her condition. She happened upon what seemed to her a really interesting approach called immunotherapy. This treatment type, which harnesses an individual's immune system to fight his or her cancer, is finding success against various cancers.

With some help from family, friends and her doctors at Yale, she searched ClinicalTrials.gov—an NIH service—and found a clinical trial testing immunotherapy for her subtype of esophageal cancer.

Claudia wasn't the slightest bit daunted about participating in clinical research—in fact this is her second

study: She is a two-time breast cancer survivor as well. "I wanted to try something that wasn't a traditional treatment; I didn't want to just sit around and do nothing," she explained.

She qualified for a study that is testing a cancer vaccine on cancer survivors with "NED," or no evidence of disease, which is still the case for her a year after receiving chemotherapy. If it works, the immunotherapy aims to keep the cancer from coming back.

Claudia knows fully what the role of research is—testing ideas to see if they work. Before cancer, she was a lifelong blood donor. She sees clinical research as a way to contribute to the greater good, including helping the doctors doing the study.

"It may not help anybody, but at least they'll know to stop looking," she said.

Claudia also hopes to participate in a National Cancer Institute "exceptional responders" research project that aims to determine whether certain people have beneficial health attributes that keep them disease-free.

Having lived through three cancers and now "feeling great," Claudia approaches each day with a renewed sense of appreciation. At her January NIH clinic visit, she heard the news that her second grandchild had been born and a third is due in June. She cannot wait.

"I love birthdays now," she said with a wide smile. 🎂

NIA Celebrates 40th Anniversary at Gerontological Society Meeting

The National Institute on Aging marked its 40th anniversary with a special symposium at the Gerontological Society of America's annual meeting. NIH director Dr. Francis Collins presented the conference keynote address, noting that aging research was "hot science," with a number of new opportunities for investigators. At the conference, three NIA staff were recognized with major awards.



Above: Dr. Rafael de Cabo (l), senior investigator in NIA's Translational Gerontology Branch, received the Vincent Cristofalo Rising Star Award in Aging Research from the American Federation for Aging Research. The award recognizes vision and accomplishments in advancing aging research and the understanding of aging. (Photo courtesy of American Federation for Aging Research) At right, "From Cells to Society: NIA at 40—Past, Present and Future" symposium featured presentations by NIA staff and grantees. On hand were (from l) NIA director Dr. Richard Hodes; Dr. Eileen Crimmins, University of Southern California; Dr. Kevin High, Wake Forest University; Dr. Steven Austad, University of Alabama at Birmingham; NIA Division of Neuroscience director Dr. Neil Buckholtz; and NIA deputy director Dr. Marie Bernard. (Photo by Bill Branson)

Below: Bernard (l) receives the Donald P. Kent Award from former NIA deputy director and Brown University public health dean Dr. Terrie Wetle. Bernard was cited for leadership in gerontology through teaching, service and interpretation of gerontology to society. (Photo courtesy of Gerontological Society of America) Dr. Luigi Ferrucci, NIA scientific



director (l), was awarded the Fondation Ipsen Longevity Prize by Yves Christen, president of the Fondation, for work on the causal pathways to functional decline in aging. The prize marks outstanding contributions in the field of longevity. (Photo courtesy of Fondation Ipsen)